

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of

Amendment of the Commission's
Rules to Establish New Personal
Communications Services

GEN Docket No. 90-314
ET Docket No. 92-100

REPLY COMMENTS OF NORTHERN TELECOM

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SUMMARY

The extensive record compiled in this proceeding, with over 160 parties having filed comments, demonstrates the vast interest in and support for the Commission's proposal to establish PCS. Northern Telecom continues to support the rapid deployment of PCS as proposed in the Notice, and urges the Commission to proceed with its efforts to attain that goal.

Northern Telecom in its initial comments urged the adoption of industry-developed standard air interfaces (SAIs), and the comments of others supported that principle. The use of SAIs will lower costs and increase flexibility, while also promoting universality and interoperability. Northern Telecom in its initial comments also advocated the allocation of spectrum for unlicensed PCS operations, a position that was strongly supported by the comments. Northern Telecom and the other commenters indicated a need for "clearing" the spectrum for this unlicensed use, and Northern Telecom urges the FCC to allow the industry to develop an appropriate mechanism for accomplishing this goal, without relying upon the FCC's equipment authorization process.

Northern Telecom views the proposal for national PCS consortia, or similar less formal alliances, as a potentially effective means for attaining a rapid deployment of PCS, although Northern Telecom believes that the proposal should be modified. First, standard air interfaces, which are common to all consortia, should be incorporated as a requirement for the consortia. Second, Northern Telecom does not believe that there

should be any unreasonable limitations on the eligibility for consortia membership.

Finally, with respect to the power levels for PCS, Northern Telecom urges the Commission to provide PCS licensees the flexibility to deploy a hybrid of high-power and low-power PCS. This will allow the development of systems that meet customer needs and respond to competition in the marketplace from other services.

Adoption of PCS rules in a manner consistent with Northern Telecom's initial Comments and these Reply Comments should ensure that the public interest benefits of PCS will be maximized.

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Northern Telecom hereby replies to the comments submitted on November 9, 1992, concerning the Commission's personal communications services (PCS) Notice of Proposed Rulemaking.^{1/} As demonstrated by the extensive record compiled in this proceeding, there is a great deal of interest in and support for the new PCS proposed by the Commission.^{2/} This support was manifest in the large number of respondents urging expedition of the ruling.

Northern Telecom, in its initial comments, urged the Commission to allocate licensed spectrum in a fair and timely manner. Northern Telecom proposed an allocation of 30 MHz to each licensee, with a total of three licensees in each serving area. In order to ensure the rapid adoption of the service and reduced costs of delivery, Northern Telecom set forth a Spectrum

1/ Amendment of the Commission's Rules to Establish New Personal Communications Services, GEN Docket No. 90-314, ET Docket No. 92-100, FCC 92-333, released August 14, 1992 (hereafter "Notice").

2/ In addition to Northern Telecom, over 160 parties submitted initial comments.

Management Methodology and base channelization plan, and recommended a common air interface for all like services. Northern Telecom further recognized the advantages of an unlicensed spectrum allocation, and called for an allocation greater than the proposed 20 MHz. Northern Telecom also indicated that this spectrum could only fully be used for the broad range of unlicensed PCS services in areas that have been "cleared" of point-to-point licensees, although some operations could be accommodated on a waiver basis.

Northern Telecom supported allowing both the cellular carriers and local exchange carriers access to the PCS spectrum given their significant experience in the marketplace. Northern Telecom was also concerned that excluding the local exchange carriers from these new wireless access services could relegate those carriers to technological obsolescence.

To ensure complete coverage and a "level playing field," Northern Telecom recommended PCS providers be classified as common carriers, and noted that a fair connection into the Public Switched Telephone Network (PSTN) is essential to the success of PCS. Northern Telecom also noted that industry boards and technical standards are needed for the success of PCS, and that slight modifications to the interference and coordination guidelines are needed to support current and future applications for PCS. In light of the other comments submitted to the Commission, Northern Telecom now takes this opportunity to reply to some of those filings and to clarify a few aspects of its initial comments.

1. The Comments Support Adoption of Standard Air Interfaces Developed by Industry Organizations

In our initial comments, Northern Telecom highlighted the benefits of common air interfaces (CAIs), or standard air interfaces (SAIs). SAIs will lower production costs, encourage innovation and specialization, and focus developers' efforts on niche markets and unique applications, while supporting competition, roaming and interoperability. Many of the comments from other organizations also supported the development of technical standards for the licensed PCS spectrum by industry groups.

Support for this concept of industry-developed SAIs came from many different areas: manufacturers, cable companies, Regional Bell Operating Companies, and industry groups. Most agreed that a standard, developed by industry organizations, was required for the success of PCS. The comments used much of the same reasoning Northern Telecom set forth in support of SAIs. For example, BellSouth suggested that consumers would gain from lower costs and more flexibility with common standards. It indicated that the consumer would have control in the market since he could choose without worrying about technology, such as proprietary phones that only work on one network. BellSouth noted that "proprietary standards would keep prices artificially high, but even more importantly they would slow deployment and eliminate universality as a trait."^{3/} TIA also stated that

^{3/} BellSouth Comments at pp. 27-28.

common standards would promote universality, a goal of the Commission in this rulemaking proceeding.^{4/} Given that service areas can be supported by independent companies, uniformity will be difficult to achieve without SAIs. In addition, Ericsson observes that industry-defined standards will allow manufacturers to reach economies of scale in their production, thereby further lowering the costs to the end users.^{5/}

Northern Telecom also agrees with related observations made by other commenting organizations. U S WEST states that:

It is not necessary that all systems or all PCS applications be interoperable or fully compatible, especially given the wide variety of services that fall within the PCS continuum. For example, a high-speed data terminal need not operate in connection with a voice telephone service PCS.^{6/}

Northern Telecom fully supports the idea of a separate SAI for each service and believes that these SAIs will offer the market a robust base from which to provide unique applications. Cox Enterprises notes that "Experience in other services demonstrates that manufacturers are reluctant to fund product research and development when there are not minimum standards", and those that do will price their products with the associated risk factors built in.^{7/}

Northern Telecom does not, however, support comments that suggest the industry must develop SAIs for all services

4/ TIA Mobile Communications Division Comments at p. 8.

5/ Ericsson Comments at p. 12.

6/ U S WEST Comments at p. 19.

7/ Cox Enterprise Comments at p. 28.

before PCS licensees are permitted to operate their systems. As standards are developed, licensees should be allowed to offer services the market demands.

In sum, there is strong support for the deployment of standard air interfaces. Northern Telecom is active in the industry groups working towards this goal, and commends these groups for their efforts taken to achieve these goals. Northern Telecom urges the Commission to allow these groups to develop the needed SAIs, and to adopt rules for PCS that incorporate the use of standard interfaces.

2. Coexistence with Incumbent Users in the Unlicensed Bands Will Not Prove Workable, and an Industry Organization Is Best Suited to Negotiate to Move These Users out of this Spectrum

One area in which there was strong support from the commenting parties was with respect to the need for, importance of, and benefits from an allocation of spectrum for unlicensed PCS.^{8/} Moreover, most of the commenters advocated that the Commission allocate spectrum in addition to the 20 MHz proposed in the Notice. Likewise, there was general agreement that the Notice's proposal to allow the current point-to-point licensees and the unlicensed PCS to coexist on a co-primary basis would not

8/ While Southwestern Bell did question the Commission's proposal to allocate spectrum for unlicensed PCS (Southwestern Bell Comments at p. 31), its reservations were based on the inability of the unlicensed PCS and licensed point-to-point systems to coexist in the same spectrum without any interference problems. As discussed in greater detail below, there is a general recognition of this problem and the resulting need for "clear" spectrum.

prove workable, in light of the mobility of the unlicensed equipment and the relative unsophistication of many unlicensed PCS users.^{9/}

Many of the comments recognized that the incompatibility of the point-to-point and unlicensed PCS operations requires that the spectrum allocated to unlicensed PCS must be "cleared" in order for widespread deployment of unlicensed PCS to occur.^{10/} The comments also indicated, however, that the Commission could not rely on the same mechanisms for "clearing" spectrum in the unlicensed PCS bands as was proposed for the licensed PCS operations. In the case of licensed PCS operations, the PCS licensees have the incentive and the ability to negotiate with the point-to-point licensees to coordinate shared usage, or to relocate the point-to-point licensee to another band.

In the unlicensed band, users of equipment and the manufacturers have an interest in the spectrum being cleared, but the lack of exclusive control over the spectrum creates potential "free rider" problems, since any user (utilizing any manufacturers' equipment) would be able to take advantage of cleared spectrum without necessarily participating in the "clearing" itself. In addition, many of the users of unlicensed

9/ As Northern Telecom explained, however, there will be opportunities for particular unlicensed PCS operations prior to the complete clearing of the band pursuant to waivers or some other similar coordination and registration process. Northern Telecom Comments at n. 14.

10/ E.g., Rolm Comments at p. 19; Ericsson Comments at p. 22; BellSouth Comments at p. 25.

PCS, such as individuals using residential cordless phones or small businesses using key systems or small PBXs, will lack the sophistication or will have insufficient economic incentives to engage in negotiations with the point-to-point licensees. Thus, the comments urge the Commission to adopt an alternative mechanism for clearing the bands for unlicensed PCS operations.^{11/}

In recognition of the need to develop a means for clearing the bands for unlicensed PCS, the industry is continuing to work towards development of a consensus approach through efforts spearheaded by WINForum.^{12/} Northern Telecom is actively participating in those ongoing efforts. The comments suggest some different approaches that may provide a workable solution, and Northern Telecom urges the Commission to allow the industry to consider further these suggestions in developing a consensus. Northern Telecom expects that a consensus will emerge in time sufficient to be presented in the closely related Emerging Technologies rulemaking,^{13/} and Northern Telecom urges the Commission to consider the suggestions of the industry in both proceedings.

For example, Rolm suggests that the Commission has the authority to delegate such a coordinating/clearing function under

11/ E.g., Rolm Comments at p. 21; American Petroleum Institute Comments at p. 19.

12/ E.g., WINForum Comments at p. 8.

13/ Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, ET Docket No. 92-9, First Report and Order and Third Notice of Proposed Rulemaking, FCC 92-437, released October 16, 1992 at para. 27.

Section 332(b) of the Communications Act.^{14/} Northern Telecom observes that because the entity would be coordinating the relocation of the fixed service licensees to a band outside the unlicensed PCS spectrum, it would appear to fall within Section 332(b)'s authorization of the Commission to utilize assistance furnished by advisory coordinating committees in connection with fixed services. Some comments suggest that WINForum could serve as the entity responsible for negotiating with the point-to-point licensees (a suggestion that Northern Telecom endorses), and WINForum has volunteered for such a role.^{15/}

There are, however, numerous issues in addition to the identity of the clearing entity that need to be resolved, and preferably through industry consensus building efforts. In order that the "free rider" problem be avoided, it would appear to be necessary that participation in the spectrum clearing activities be mandatory rather than voluntary.

Northern Telecom, however, disagrees with the suggestion of some comments that the Commission "enforce" participation through the equipment authorization process.^{16/} Northern Telecom does not believe the Commission has the authority under the Communications Act to use the equipment authorization process for purposes other than ensuring compliance

^{14/} Rolm Comments at p. 22.

^{15/} E.g., Hewlett-Packard Comments at p. 3; WINForum Comments at p. 8.

^{16/} E.g., Rolm Comments at p. 22; WINForum Comments at p. 11; Hewlett-Packard Comments at pp. 2-3; Motorola Comments at pp. 42-43; Telocator Comments at p. 23; Utilities Telecommunications Council at p. 19.

with technical standards, and so such an enforcement mechanism for participation in the spectrum clearing activities would appear to be unwarranted. Moreover, use of the equipment authorization process for these purposes would be in conflict with international trade obligations of the United States.^{17/}

Northern Telecom and other members of the industry are continuing to explore alternatives, such as the suggestion in Apple's Petition for Rulemaking that "transmitter identifications" might be used for administering participation in the spectrum clearing process,^{18/} and Northern Telecom believes those efforts will be fruitful in the near future.

Likewise, Northern Telecom anticipates that the industry will reach a consensus with respect to ensuring that the spectrum clearing process occurs rapidly and in furtherance of the public interest, rather than serving as a means to unjustly enrich the private interests of particular incumbents. The Commission can take steps to produce such an outcome, including giving priority to displaced licensees in any nearby government spectrum that becomes available, and clearly defining the

17/ Such an approach of tying equipment certification to funding/participation in the spectrum clearing activities appears inconsistent with the recently negotiated North American Free Trade Agreement, and is inconsistent with the U.S. negotiating position at GATT and OECD.

18/ Apple Petition for Rulemaking at pp. 27-28. See also WINForum Comments at p. 11. Having a private entity administer a numbering scheme is certainly not unprecedented, with AT&T and then Bellcore having been assigned the role of administrator of the North American Numbering Plan.

appropriate compensation criteria.^{19/} In this regard, the Commission should consider differences between the licensed and unlicensed PCS services in setting the criteria. For example, the public interest benefits of enhanced mobility and productivity made available by unlicensed PCS, along with the need for prompt deployment of unlicensed PCS so that it can serve as a catalyst for the widespread deployment of PCS, are inconsistent with a long transition period.^{20/}

In sum, Northern Telecom believes that the PCS community recognizes the need for clearing spectrum for unlicensed PCS, and has already undertaken significant efforts to develop an industry-wide consensus. Given the clear interest and the progress of the industry already experienced to date, Northern Telecom urges the Commission to adopt rules that will foster a prompt clearing of the unlicensed PCS spectrum consistent with the consensus that should emerge shortly from that process.^{21/}

19/ Compensation should be set at a level that reimburses the point-to-point licensees for reasonable costs of relocating, and should not be viewed by these licensees as an opportunity to modernize their facilities at somebody else's expense in return for vacating "their" spectrum. Cf., American Petroleum Institute Comments at pp. 21-22. The Communications Act is very explicit that a licensee has no "claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise." 47 U.S.C. § 304.

20/ See also, Emerging Technologies NPRM at para. 27, recognizing that differences between the licensed and unlicensed services exist.

21/ See note 12, supra.

3. National Licensing Organizations are a Unique Method to Foster Rapid Adoption of PCS Services

In its comments, MCI proposed that the Commission license three national consortia to provide PCS services, each consisting of a national entity working in conjunction with local service providers. MCI would have the Commission define a consortium:

as a national entity that includes two types of participants: first, a major participant with the technical expertise to perform necessary support functions for a national PCS system; second, a group of independent local operators who have substantial ownership and actively participate in the consortium and its management.²²

Northern Telecom believes nationwide organizations would be an effective method to achieve the Commission's goals of speedy deployment of PCS in the marketplace and universality of service. Industry organizations such as T1, TIA, and others are working to come up with standards for the PCS market and will play an important role in shaping the technology. Northern Telecom believes a consortia plan, or a less formal alliance of companies holding regional cellular or PCS licenses, working together toward a single standard will foster adoption of these standards rapidly. A consortia plan will also speed the licensing process, whether it be by lottery or by comparative hearings, since it would reduce the number of applications the Commission must review, thereby speeding the deployment of the

²²/ MCI Comments at p. 9.

service. At the same time, diversity of local providers will be further encouraged through these national organizations.

Northern Telecom recommends granting one or two nationwide consortia licenses, and one or two regional licenses, for a total of three licenses per service area. This will allow for the advantages of a strong, nationwide organization, where each player will be bound by the rules of the organization. At the same time, it will open the door for less formal national alliances among the regional providers.

Since a consortium will have a standard air interface defined for all its providers nationwide,^{23/} an end user will be able to use its handsets anywhere in the country. This roaming capability has been shown to be important to users, in its tremendous acceptance in the cellular industry as well as the success of nationwide paging. Users will be able to log onto the system provided by the consortium of their choice and be guaranteed a base level of features. This gives the providers, whether or not they are consortia members, the incentive to offer roaming as quickly as possible to stay competitive, and will guarantee the universality of PCS.

There are additional advantages for the marketplace. National organizations will reduce the level of investment required by small entrepreneurs to provide PCS services. Much of the testing and other overhead work will already be completed, and the cost will be shared by all members of the organization.

^{23/} In its comments, MCI states "[s]imilarly, each consortia [sic] would set national specifications for PCS equipment and design." MCI comments at p. 10.

They will be able to take advantage of the economies of scale afforded to larger companies. In addition, a nationwide organization could be urged to include minority businesses, and could be required to guarantee minority representation in the industry. Finally, as the consortia are formed, all qualified organizations should be included in the organization.

We agree this is a very effective method to ensure speedy deployment of the service; however, we propose some modifications to the aforementioned plan. First, to ensure the lowest cost products and services to the end users, all licensees should agree to standard air interfaces for like services industry-wide, which will ensure that manufacturers are able to achieve economies of scale in development and production of PCS products, keeping the cost to the end user low.²⁴ These standards will still allow the providers to offer additional services, but a common set of standards will lower costs to the end users through lower handset and service costs. The second area to which we propose changes is the ability of organizations to participate in the consortia. Northern Telecom believes that there should be no unreasonable limitation to the types of businesses that take part in the provision of service. Most notably, local exchange carriers and cellular companies should not be prevented from participating in these organizations. They should be able to compete in wireless services on a level playing field with others in the market.

²⁴/ As Northern Telecom observed in our initial comments, "[t]he use of [common air interfaces] should also assist in those efforts to minimize costs." Northern Telecom Comments at p. 14.

4. PCS License Holders Should Have the Flexibility to Provide the Service at the Most Appropriate Power Levels for Their Service Area


Northern Telecom believes PCS licensees should have the flexibility to deploy a hybrid of High-Power and Low-Power PCS system applications to meet customer needs. Northern Telecom believes that PCS systems will serve many in-building needs with microcells and the microcell application will be the initial growth market for PCS. However, PCS users will want to have their PCS device operational in the urban public areas, outside of offices and shopping malls. Higher-Power PCS will be needed in open public areas to provide connectivity for the user. To foster competition and to serve public needs, a PCS licensee must have the flexibility to serve motorists (and mass transportation system users) in the open urban environment. The costs and delays associated with requiring small microcell sites in the open public urban environment would put PCS at a serious disadvantage to compete with other radio services. The expenses of acquiring PCS base station right-of-way (and right-of-way to connect the base stations), together with acquiring zoning authorization, would delay and drive up the cost of PCS, if microcells are required exclusively in the open public urban environment.

CONCLUSION

Northern Telecom urges the Commission to continue its efforts to allow the rapid deployment of new personal communications services through this proceeding adopting rules for PCS and the parallel allocation activities. Northern Telecom believes adoption of PCS rules in a manner consistent with its initial Comments and these Reply Comments should ensure that the public interest benefits of PCS will be maximized.

Respectfully submitted,

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